[0070] 30 nm thick 1.46 refractive index layer (to simulate silicon oxide)

[0071] 1.5 refractive index layer (to simulate an optical adhesive)

[0072] Control Construction X1:

[0073] 1.67 refractive index layer (to simulate a PET substrate)

[0074] 30 nm thick 1.46 refractive index layer (to simulate silicon oxide)

[0075] 1.5 refractive index layer (to simulate an optical adhesive)

[0076] Construction 2:

[0077] 1.67 refractive index layer (to simulate a PET substrate)

[0078] 30 nm thick 1.46 refractive index layer (to simulate silicon oxide)

[0079] 20 nm thick 2.0 refractive index layer (to simulate ITO)

[0080] 1.5 refractive index layer (to simulate an optical adhesive)

[0081] Comparative Construction C2 (Same as Construction 2 without Coating Between Substrate and ITO):

[0082] 1.67 refractive index layer (to simulate a PET substrate)

[0083] 20 nm thick 2.0 refractive index layer (to simulate ITO)

[0084] 1.5 refractive index layer (to simulate an optical adhesive)

[0085] Control Construction X2:

[0086] 1.67 refractive index layer (to simulate a PET substrate)

[0087] 1.5 refractive index layer (to simulate an optical adhesive)

[0088] Internal transmission of visible light (wavelengths from 400 nm to 700 nm) for each of these constructions was modeled using SCI Film Wizard optical modeling software. Results for three wavelengths across the visible spectrum are given in Table 1. Δ represents the difference between the transmission of the identified construction and the corresponding control construction.

TABLE 1

Internal Transmission for Various Constructions

Construction	% T @ 400 nm	Δ	% T @ 550 nm	Δ	% T @ 700 nm	Δ
1	89	0.9	89.8	0.1	90	0.1
C1	88.5	1.4	89.2	0.7	89.4	0.5
X1	89.9		89.9		89.9	
2	88.9	1.0	89.7	0.2	90	0.1
C2	88.5	1.4	89.2	0.7	89.4	0.5
X2	89.9		89.9		89.9	

[0089] The modeling results indicate that constructions of the present invention exhibit increased transmission in areas covered by the transparent conductor pattern throughout the visible spectrum. The modeling results also indicate that the transmission difference between areas covered by the transparent conductor and areas not covered by the transparent conductor are less for constructions of the invention than for otherwise identical comparative constructions that do not include a lower index coating between the substrate and the transparent conductor pattern. Such reduced difference in transmission between covered and uncovered areas results in a transparent conductor pattern that is less visually distinguishable.

[0090] It is also instructive to compare the Δ for both Constructions 1 and 2 to the Δ for Comparative Construction C2, which best represents typical known constructions for such touch screens on flexible substrates. Since both Control Constructions X1 and X2 were identical in optical performance, these Δ's can be directly compared. Such comparison indicates that both Construction 1 and Construction 2 exhibit improved transmission in the ITO covered regions over the entire visible spectrum when compared to Comparative Construction C2, and that Construction 1, which includes a silicon oxide layer over and under the ITO, exhibits slightly improved transmission for portions of the visible spectrum over Construction 2, which includes a silicon oxide layer only under the ITO.

[0091] The present invention should not be considered limited to the particular examples described above, but rather should be understood to cover all aspects of the invention as fairly set out in the attached claims. Various modifications, equivalent processes, as well as numerous structures to which the present invention may be applicable will be readily apparent to those of skill in the art to which the present invention is directed upon review of the instant specification.

What is claimed is:

1. A touch screen comprising:

a substrate;

a coating substantially covering the substrate;

a transparent conductor pattern disposed on the coating, the pattern leaving areas of the coating uncovered; and

a filler material covering and contacting both the transparent conductor pattern and the areas of the coating uncovered by the transparent conductor pattern;

wherein the coating has a refractive index that is less than that of the substrate and less than that of the transparent conductor pattern.

2. The touch screen of claim 1, wherein the filler material has a refractive index matching or nearly matching the refractive index of the coating.

3. The touch screen of claim 1, wherein the filler material is the same as the material of the coating.

4. The touch screen of claim 1, wherein the filler material comprises silicon oxide.

5. The touch screen of claim 1, wherein the filler material is an adhesive.

6. The touch screen of claim 1, wherein the substrate comprises plastic.